

## MATERIALS FOR A FLORA OF TURKEY XXVIII: COUSINIA

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ABSTRACT. Twelve new Turkish species of *Cousinia* are described from the sections *Cousinia*, *Cynaroideae*, *Sphaerocephalae* and *Stenocephalae*.

The following new species of *Cousinia* are described prior to my account of the genus for the Flora of Turkey vol. V. A discussion of these species and their affinities will be included in a forthcoming paper in *Berichte der Schweizerischen Botanischen Gesellschaft* which will give a general revision of all the Turkish species.

### *Cousinia birandiana* Hub.-Mor., sp. nov. (Sect. *Cousinia*).

*Perennis*. *Caulis* c. 30 cm altus, dense appresse araneoso-floccosus, demum valde glabrescens et flavescens, gracilis, teres, tenuiter striatus, ramosissimus, ramis patulis, iterum iterumque ramosis, paniculam ad 30 cm amplam, polycephalam, dense foliosam formans. *Folia* coriacea, nervatura reticulata prominente, araneoso-lanata, supra glabrescentia, subtus albo-lanata vel albo-tomentosa, in spinas ad 6 mm et ultra longas excurrentibus; folia basalia anguste oblonga, 10–15 cm longa, c. 3 cm lata, pinnatisecta, segmentis utrinque 6–8, triangularibus, tenuiter spinosis, rachide c. 0.5 cm lata; folia caulina breviter (3–10 mm longe) adnato-decurrentia, inferiora oblonga vel ovata, 5–6 cm longa, 2.5–4 cm lata, sinuato-lobata, segmentis utrinque 4–6, triangularibus, irregulariter spinoso-dentatis; folia caulina superiora valde diminuta, lanceolata vel linearia, longius spinoso-dentata, spinis terminalibus usque ad 1 cm longis. *Capitula* numerosa (–60), ad extremos ramos subsingula vel ramulis abbreviatis insidentia ± approximata, subsessilia, spinis inclusis 2–4 cm diametro, 17–35-flora; involucrem absque spinis 1.5–1.8 × 1–1.5 cm, ovatum, araneoso-lanatum; phylla 70–90, exteriora et intermedia e basi lanceolata appressa in spinam tenuem, subulatam, 5–15 mm longam, ± patulam sed non recurvam attenuata, intima angusta, erecta, glabra, flava, scariosa, 15 mm longa. *Receptaculum setae* laeves. *Corolla* flava, 14–15 mm longa, laciniae 4 mm longae. *Antherarum tubus* roseus, glaber. *Achaenia* brunnescentia, 5 × 2 mm, oblongo-obpyramidata, tenuiter marginata et indistincte denticulata, longitudinaliter striata, ± verruculosa. *Pappus* scaber, 3–5 mm longus.

Turkey. B4 Konya: Aksaray to Ereğli, S of Obruk, *Artemisia* steppe, 25 vi 1953, *Birand & M. Zohary* 2136. B5 Niğde: steppe 20 km NE of Niğde, 11 vi 1937, *Reese*; steppe 52 km S of Aksaray, 24 vii 1962, *M. & D. Zohary* 1011, 1012. B5 Kayseri: *Artemisia* steppe 52 km S of Kayseri, 29 viii 1959, *M. & D. Zohary* 2498. C4 Konya: steppe near Karapınar, 2 vii 1955, *Birand* s.n. (holo. hb. Hub.-Mor.; iso. ANK, E); steppe with *Salvia cryptantha*, 1 km E of Karapınar, 950 m, 29 v 1956, *Hub.-Mor.* 17852.

Named in honour of the discoverer, Prof. Dr Hikmet Birand, Ankara.

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***Cousinia eleonorae* Hub.-Mor., sp. nov. (Sect. *Cousinia*).**

*Perennis*, pluricaulis. *Caulis* 15–20 cm altus, tenuiter appresse albotomentosus, a basi parce vel dense ramosus, ramis divaricatis, 2–4 (–8) cm longis, modice vel dense foliatus. *Folia* omnia superne dense, subtus densissime albo-tomentosa, pinnatifida, lobis angustis, integris vel dentatolobatis; folia basalia oblonga, 5–10 cm longa, 2–4 cm lata, pinnatipartita, segmentis utrinque 6–10, linearibus, integris, ad 2.5 cm longis, 3 mm latis, margine subrevolutis, in spinam tenuem 2 mm longam abrupte attenuatis, rachide 2 mm lata, tenuiter spinulosa; folia caulina inferiora et media similia sed minora, breviter anguste adnato-decurrentia, alis 5–10 mm longis, spinulosis, folia superiora lanceolata, 2–3 cm longa, 1–1.5 cm lata, inciso-dentata, spinosa, folia summa linearia, spinulosa, capitulis approximata. *Capitula* 5–10 (–20), ad extremos ramos subsingula vel ramulis abbreviatis insidentibus  $\pm$  approximata, subsessilia, spinis inclusus 1.2–1.5 cm diametro, 10–15-flora; involucrum absque spinis  $1.5 \times 1$  cm, ovatum, araneoso-lanatum; phylla 45–50, 4–13 mm longa, usque ad 1.5 mm lata, exteriora e basi oblonga, appressa, 2 mm longa, in spinam subulatam, 2 mm longam, falcato-recurvam, phylla media et superiora in spinam 5–10 mm longam, leviter recurvam, attenuata, phylla intima erecta, scariosa, 13 mm longa, margine minute serrulata. *Receptaculi setae* laeves. *Corolla* rubra vel flava et rubrosuffusa, 10–12 mm longa, laciniae 2–2.5 mm longae. *Antherarum* tubus roseus, glaber. *Achaenia* brunnea,  $5 \times 2$  mm, oblongo-obovata, longitudinaliter striata, margine distincte denticulata. *Pappus* scaber, 1.5–3 mm longus.

Turkey. B6 Sivas: distr. Kangal, Tecer to Gürün, limestone slopes near Samakurd, 36 km S of Tecer, 1520–1550 m, 21 vii 1958, *Huber-Morath* 15932 (holo. hb. Hub.-Mor.); fields near Kangal, 1440 m, 25 viii 1959. *M. & D. Zohary* 3541.

This new species is named after my dear wife and collaborator Eleonore Huber-Morath.

***Cousinia ermenekensis* Hub.-Mor., sp. nov. (Sect. *Cousinia*).**

E planta unica, non satis evoluta, descripta.

*Perennis*, ubique densissime albo-pannosus. *Caulis* robustus, 25 cm altus, basi 1 cm diametro, a basi modice ramosus, ramis crassiusculis, divaricatis, 10 cm longis, oligocephalus, tota longitudine dense foliatus. *Folia* utrinque albo-velutina, dense irregulariter spinoso-dentata sed spinoso-lobata, in spinas usque ad 5 mm longas excurrentibus; folia basalia lanceolato-linearia, 15–20 cm longa, 4 cm lata, breviter petiolata, irregulariter runcinato-lobata, segmentis utrinque 6–10, rachis 1 cm lata; folia caulina inferiora similia, sed breviora et latiora, spinis inclusis ad 5 cm lata, indistincte petiolata vel sessilia, adnato-decurrentia, alis latis, ad 3 cm longis, longe spinosis, folia superiora parva, lanceolata, inciso-paucidentata, decurrentia, alis late cuneatis, folia summa lanceolato-linearia, longe subulata, spinulifera, capitulis approximata vel fulcrantia. *Capitula* ante anthesin spinis inclusis 2.5–3 cm diametro; involucrum absque spinis  $\pm$  globosum, 1.5–2 cm longum latum, dense velutinum; phylla c. 135, margine minute serrulata, exteriora e basi oblonga in spinam subulatam, 8 mm longam, falcato-recurvam, atten-

uata, phylla media horizontaliter divaricata, 12–15 mm longa, phylla intima erecta, scariosa, ad 17 mm longa et 2 mm lata. *Flores achaenique ignoti.* Turkey. C4 Konya: steppe with *Quercus coccifera*, E of Ermenek, 1300–1350 m, 7 vii 1964, Huber-Morath 17311 (holo. hb. Hub.-Mor.).

***Cousinia euphratica* Hub.-Mor., sp. nov. (Sect. *Cousinia*).**

E planta unica descripta.

*Perennis.* *Caulis* 15 cm altus, teres, araneoso-lanatus, parce ramosus, inferne usque ad 4 mm diametro, ramis usque ad 5 cm longis, dense foliatus. *Folia* omnia parva, in segmentis minutis, dense congestis, dense tenuiter spinosis, pinnatisecta, supra araneoso-floccosa, mox glabrata, subtus appresse albo-velutina, indumentum persistens; folia basalia subsessilia, oblonga, 3–5 cm longa, 0.8–1 cm lata, pinnatifida, segmentis utrinque c. 6, late triangularibus, 2–5 mm longis, apice breviter spinulosis, basi spinis 1–2 auctis, rachide 2–4 mm lata; folia caulina inferiora magis dissecta, undulata, segmentis congestis, 8 mm longis, 2–3 mm latis, adnato-decurrentia, alis 0.5–1 cm longis, folia media et superiora cito minora. *Capitula* c. 8, spinis inclusis 1.5–1.7 cm diametro, c. 15-flora; involucrium absque spinis late ovatum, araneoso-lanatum, valde glabrescens; phylla 110, anguste lanceolato-subulata, arcuato-reflexa, exteriora e basi appressa, 2 mm longa, 1 mm lata, in spinam 5 mm longam, media et superiora in spinam 7 mm longam attenuata, phylla intima erecta, scariosa, subtiliter serrulata, 12 mm longa, 1 mm lata. *Receptaculum setae* laeves. *Corolla* rubra, 12–13 mm longa, laciniae 2.5 mm longae. *Antherarum tubus* roseus, glaber. *Achaenia* dilute brunnescentis, 4 × 2.5 mm, obovata, compressa, longitudinaliter striata, truncata, obtuse denticulata. *Pappus* scaber, 1.5–2 mm longus.

Turkey. B7 Malatya: Malatya to Elâziğ, border of the Euphrates, 50 km E of Malatya, 680 m, 11 vii 1956, Birand & Karamanoğlu 161 (holo. hb. Hub.-Mor.; iso. ANK).

***Cousinia halysensis* Hub.-Mor., sp. nov. (Sect. *Cousinia*).**

*Perennis.* *Caulis* 25–35 cm altus, appresse albo-araneosus, demum valde glabrescens, flavescens vel brunnescentis, tenuis, basi 5 mm diametro, late divaricate ramoso-dumulosus, paniculam usque ad 30 cm amplam, polycephalam, modice foliosam formans. *Folia* omnia coriacea, tenuiter sed rigide spinosa, discoloria, supra laxe araneoso-lanata, valde glabrescentia, viridia, lucida, subtus dense persistenter albo-tomentosa; folia basalia oblongo-lanceolata, 6–15 cm longa, 2–4 cm lata, pinnatifida vel pinnatisecta, segmentis numerosis, utrinque usque ad 15, anguste lanceolatis, 1–2 cm longis, 2–4 mm latis, basi lacinula accessoria auctis, apice spiniscentibus, rachide 2–4 mm lata; folia caulina cito minora, minus profunde incisa, adnato-decurrentia, alis cuneiformes, 1–2.5 cm longis, irregulariter spinosis, folia summa lanceolata vel linearia, indivisa, sparse spinulosa, capitulis approximata. *Capitula* numerosa, subsessilia, subsingula vel ramulis abbreviatis insidentia ± approximata, spinis inclusis 1.5–2 cm diametro, 15–30-flora; involucrium absque spinis c. 1.2 × 0.8 cm; ovatum, laxiuscule araneosum, mox glabrescens; phylla 60–100, anguste lanceolato-subulata, irregulariter imbricata, squarroso-patentia, exteriora et media e basi appressa, ovata, 2 mm longa, 1.5 mm lata, in spinam 4–7 mm longam

attenuata, phylla intima erecta, scariosa, 13–15 mm longa, 1 mm lata, margine minutissime serrulata. *Receptaculum setae* laeves. *Corolla* flava, 10–12 mm longa, laciniae 3 mm longae. *Antherarum tubus* roseus vel purpureus, glaber. *Achaenia* dilute brunnescens, oblongo-obovata,  $5-6 \times 2$  mm, compressa,  $\pm$  nigro-maculata, scrobiculata, apice truncata, distincte  $\pm$  obtuse denticulata. *Pappus* scaber, 2–3 mm longus.

Turkey. B4 Ankara: between Ankara and the Orman çiftliği, fidanlık sahası, 900 m, 10 viii 1956, *Alpay* 554; distr. Bâlâ, Bâlâ to Gölbaşı, steppe 3 km N of Bâlâ, 1100 m, 23 vii 1958, *Huber-Morath & Simon*, *H.-M.* 15934, (holo. hb. Hub.-Mor.; iso. hb. Simon). B5 Kırşehir: Kırşehir to Bâlâ, near Karakaya, 30 viii 1959, *M. & D. Zohary* 3231; steppe near Kırşehir, 1120 m, 5 viii 1962, *M. Zohary* 613, 615; 2 km NW of Malya near Kırşehir, 30 viii 1959, *M. & D. Zohary* 2705; steppe 10 km NW of Kırşehir, 1050 m, 23 vii 1958, *Hub.-Mor. & O. Simon*, *H.-M.* 15938.

Named after the river Halys, the Kizilirmak of modern Turkey, in whose environs the new species grows.

***Cousinia iconica* Hub.-Mor., sp. nov. (Sect. *Cousinia*).**

*Perennis*. *Caulis* 15–30 cm altus, araneoso-lanatus, demum  $\pm$  decalvans, tenuis vel  $\pm$  robustus, basi 5 mm diametro, jam infra medium iteratim divaricate ramosus, dense foliatus. *Folia* omnia discoloria, supra laxe araneoso-lanata, demum  $\pm$  glabrescentia, subtus dense persistenter albotomentosa, tenuiter spinosa; folia basalia breviter petiolata, linearia vel oblanceolata, 10–20 cm longa, 2–4 cm lata, pinnatifida vel bipinnatifida, segmentis utrinque 6–12, lanceolatis, integris vel pinnatifidis, 1–2 cm longis 2–7 mm latis, in spinas usque ad 5 mm longas excurrentibus, rachide 2–5 mm lata, irregulariter dentato-spinosa; folia caulina distincte adnato-decurrentia, alis 1–2 cm longis, folia caulina inferiora et media basalibus similia sed minus incisa, rachide et segmentis latioribus, paucioribus, folia superiora lanceolata, paucidentata, vel linearia, indivisa, spinulifera, folia summa capitulis approximata. *Capitula* numerosa, ad extremos ramos subsingula vel ramulis abbreviatis insidentia approximata, spinis inclusis 2.5–3.5 cm diametro, 10–35-flora; involucrium absque spinis  $1.5-2 \times 1-1.5$  cm, late ovatum, araneoso-lanatum; phylla 50–95, lanceolato-subulata, exteriora e basi appressa, 2–3 mm longa, in spinam rectam, deorsum curvatam, 5–8 mm longam, media in spinam rectam, patulam, 10–13 mm longam attenuata, intima 15 mm longa, scariosa, margine minute serrulata. *Receptaculum setae* laeves. *Corolla* flava, 11–13 mm longa, laciniae 2.5–3 mm longae. *Antherarum tubus* roseus, rarissime flavus, glaber. *Achaenia* brunnea,  $6 \times 3$  mm, oblongo-obovata, compressa, longitudinaliter striata, apice truncata, indistincte obtuse denticulata. *Pappus* scaber, 2–4 mm longus.

Turkey. B3 Eskişehir: steppe with *Artemisia* 35 km S of Çifteler, 1000 m, 19 vii 1968, *Sorger* 68–48–4. B3 Afyon: steppe near Emirdağ, 1 vii 1953, *Birand & M. Zohary* 2612. B4 Konya: Tuz gölü near Yavşan, 16 vii 1953, *Birand* 1514; steppe 16 km S of Cihanbeyli, 950 m, 10 vii 1964, *Hub.-Mor.* 17309. C3 Konya: Beyşehir to Konya, steppe 16 km E of Beyşehir, 1000 m, 17 viii 1959, *M. & D. Zohary* 3048. C4 Konya: distr. Konya, steppe 2 km above Silile, 1270 m, 9 vii 1964, *Huber-Morath* 17312 (holo. hb. Hub.-Mor.); distr. Karapınar, steppe 1 km E of Karapınar, 850 m, 29 v 1956, *Hub.-Mor.*

14662; distr. Bozkir, steppe hills between N Karanje dere and Ulupinar, S of Bozkir, 2000 m, 2 ix 1947, *Davis* 14595; distr. Karaman, Karaman to Mut, *Pinus pallasiana*-forest 11 km S of Karaman, 1350 m, 6 vi 1964 *Hub.-Mor.* 17310.

***Cousinia sivasica* Hub.-Mor., sp. nov.** (Sect. *Cousinia*).

*Perennis*. *Caulis* 10–20 cm altus, appresse araneoso-lanatus, demum  $\pm$  glabrescens, flavescens, tenuis, basi 4 mm diametro, divaricate ramosus, dense foliatus. *Folia* coriacea, discoloria, supra laxe araneoso-lanata, subtus dense albo-tomentosa, tenuiter spinosa; folia basalia breviter petiolata, oblonga vel lanceolata, 5–15 cm longa, 2–4 cm lata, pinnatipartita, segmentis utrinque c. 8, anguste lineari-lanceolatis, usque ad 2 cm longis, 2–5 mm latis, margine subrevolutis, in spinam tenuem, 2–3 mm longam attenuatis, folia caulina inferiora similia sed minora, segmentis latioribus et paucioribus, folia media et superiora lobata vel pinnatisecta, adnato-decurrentia, alis angustis vel latiusculis, spinoso-dentatis, 1–3 cm longis, folia summa linearia, parce spinulosa, capitulis approximata. *Capitula* 5–15, spinis inclusis 1.8–2 cm diametro, 20–30-flora; involucrum absque spinis 1.5–2  $\times$  1.2 cm, ovatum,  $\pm$  dense araneoso-lanatum; phylla 70–120, margine minute serrulata, exteriora, media et superiora e basi appressa ovato-lanceolata sensim in spinam subulatam, plerumque erecto-patulam, modice curvatam vel rectam, nec reflexam, 3–7 mm longam attenuata, intima erecta, scariosa, 15 mm longa. *Receptaculum setae* laeves. *Corolla* flava, 12–15 mm longa, laciniae 2.5–4 mm longae. *Antherarum tubus* roseus, glaber. *Achaenia* brunnea, oblongo-obovata, 5  $\times$  2 mm, compressa, longitudinaliter striata, modice scrobiculata, apice truncata, indistincte denticulata. *Pappus* scaber, 2–4 mm longus.

Turkey. B6 Sivas: distr. Yildizeli, steppe hills 10 km SE of Yildizeli, 1360 m, 10 vi 1955, *Hub.-Mor.* & *Simon*, *H.-M.* 12847; distr. Sivas, steppe hills, border of the Kizilirmak, 14 km NW of Sivas, 1320 m, 25 vi 1955, *Hub.-Mor.* 12845; Sivas to Ulaş, limestone slopes 25 km S of Sivas, 1400 m, 27 vi 1955, *Hub.-Mor.* & *Simon*, *H.-M.* 12846; idem, serpentine hills 26 km S of Sivas, 1450–1480 m, 21 vii 1958, *Hub.-Mor.* 15931 (holo. hb. *Hub.-Mor.*); *Astragalus* steppe S of Ulaş, 25 viii 1959, *M. & D. Zohary* 3284; distr. Kangal, Sivasto Malatya, Felhan Da. S of Deliktaş, limestone rocks, 1600 m, 10 vii 1956, *Birand & Karamanoğlu* 112; idem, 25 km S of Ulaş, 1500 m, 10 vii 1956, *Birand & Karamanoğlu* 151; Sivas to Gürün, steppe 70 km SW of Sivas, 4 viii 1962, *M. & D. Zohary* 207/1; distr. Gürün, Gürün to Pinarbaşı, limestone slopes 10 km W of Gürün, 1700 m, 22 vii 1958, *Hub.-Mor.* & *Simon*, *H.-M.* 15937. B6 Maraş: entre Albistan (Elbistan) et Dérindeh (Darendé), 13 vii 1906, *G. & B. Post* 911 (as *C. albistanica* Aznavour—*nomen nudum*).

This new species was first recognised by Aznavour who called it *C. albanica*; this was never published.

***Cousinia birecikensis* Hub.-Mor., sp. nov.** (Sect. *Cynaroideae* Bunge).

E planta unica non satis evoluta descripta.

Probabiliter perennis, monocarpica. *Caulis* 40 cm altus,  $\pm$  robustus, basi 4 mm diametro, teres, tenuiter striatus, araneoso-floccosus, modice

foliatus, a basi ramosus, 5-cephalus, ramis erecto-patentibus. *Folia* utrinque araneoso-lanata, supra  $\pm$  glabrescentia, subtus persistenter albida; folia basalia subsessilia, ovato-lanceolata, 10–15 cm longa, 4–6 cm lata, bipinnatisecta, densissime irregulariter spinosa, in spinas 2–5 mm longas excurrentibus, segmentis utrinque 6–10, lanceolatis vel breviter triangularibus, 2–3 cm longis, segmento terminali parvo; folia caulina inferiora similia sed minora, pinnatilobata, usque ad 6 cm longa et 3 cm lata, complete decurrentia, folia media et superiora valde decrescentia, lanceolata, grosse et irregulariter spinoso-dentata, longe anguste (usque ad 6 cm) vel late cuneato-decurrentia, folia summa linearia, sparse spinulosa, capitulis approximata. *Capitula* ante anthesin spinis inclusis 5–6 cm diametro, ambitu subglobosa; phylla c. 40–50, appresse araneoso-lanata, a basi appressa, glabrescentia 5 mm longa lata, margine minute serrulata, superne constricta, in appendicem patulam, 2 cm longam, 1 cm latam, deltoideam, nervosam, apice longe spiniferam, lateraliter integram vel sparse spinulosam, subito dilatata. *Flores achaeniaque* ignoti.

Turkey. C6 Urfa: Biredjik (Birecik), Tschiftlik (Çiftlik), in declivibus ad Euphratem, 8 v 1888, *Sinten* 1528 (holo. LD).

***Cousinia hakkarica* Hub.-Mor., sp. nov. (Sect. *Cynaroideae* Bunge).**

*Biennis* vel *perennis*, monocarpica. *Caulis* verisimiliter elatus, tenuis 3–8-cephalus, tenuiter striato-angulatus, parce araneoso-lanatus, mox glabrescens, glandulis sessilibus  $\pm$  dense tectus, in dimidio superiore ramosus ramis erecto-patentibus, monocephalis, modice foliatus. *Folia* coriacea, dense irregulariter spinosa, supra glabrescentia, subtus parce arachnoidea et  $\pm$  dense glandulosa; folia basalia ignota, folia caulina inferiora ovata vel oblonga, 5–10 cm longa, 3–5 cm lata, breviter (usque ad 1.5 cm) adnato-decurrentia, densissime spinoso-dentata vel -lobata, spina terminali validissima, longissima, 5–10 (–20) mm longa, lateralibus validis, cum spinulis brevibus tenuibus irregulariter alternantibus; folia superiora parva, lanceolata vel bracteiformia, integra, tenuiter sed saepe longissime spinulosa, brevissime decurrentia. *Capitula* breviter vel indistincte pedunculata, spinis inclusis 3.5–4.5 cm diametro, c. 110-flora; involucrum absque spinis  $2 \times 1.8$ –2 cm, late ovatum vel globosum; phylla c. 120, arachnoidea, cito glabrescentia,  $\pm$  dense persistenter papillosa vel glandulosa, exteriora 10–13 mm longa, e basi appressa, margine minute serrulata, sensim in appendicem spinosam, lanceolatam, recurvam excurrentia, margine utrinque 1–4-spinulosa, phylla intermedia 15–20 mm longa, horizontaliter vel erecto-patentia, appendiculata, appendice 7–12 mm longa, 3–5 mm lata, late ovata vel orbiculata, longius (usque ad 5 mm) spinescens, margine integra, phylla intima erecta, usque ad 25 mm longa, linearia, membranacea. *Receptaculum setae* inferne laeves, superne scabridulae. *Corolla* alba, 23 mm longa, laciniae 5–7 mm longae. *Antherarum tubus* dilute roseus, glaber. *Achaenia* brunnea, oblongo-cuneata,  $5 \times 1.5$ –2 mm, compressa, indistincte longitudinaliter striata, superne vix denticulata. *Pappus* scaber, 5–8 mm longus.

Turkey. C9 Hakkâri: Zab gorge below (2–3 km from) Çölemerik, stony S slopes, 1400 m, 24 vi 1966, *Davis* 45467 (holo. E); Kara dağ, eroded S slopes, 2400 m, 15 viii 1954, *Davis & O. Polunin*, D. 24376.



**Cousinia vanensis** Hub.-Mor., *sp. nov.* (Sect. *Cynaroideae* Bunge).

*Biennis* vel *perennis*, monocarpica. *Caulis* 10–50 cm altus, tenuis, 5–20-cephalus, tenuiter striato-angulatus, araneoso-floccosus, mox glabrescens, flavescent, glandulis sessilibus obsitus, a medio vel a basi divaricate ramosus, interrupte alatus, dense foliatus. *Folia* omnia coriacea, concoloria, utrinque araneoso-tomentella sed saepe cito glabrescentia, elevato nervosa, sparse vel modice glandulosa, dense spinoso-dentata,  $\pm$  undulata; folia basalia subsessilia, oblonga, 5–15 cm longa, 2.5–3.5 cm lata, interrupte pinnatilobata vel lyrato-pinnatifida, segmentis lateralibus utrinque usque ad 8, inaequaliter triangularibus, spinoso-dentatis, segmento terminali vix auctus, rachide 5–10 mm lata, dentato-lobata; folia caulina inferiora similia sed minora, longe (2–4 cm), saepe complete decurrentia, in alas latas, irregulariter spinosas decurrentia, folia media et superiora ovata vel lanceolata, sublobata vel irregulariter spinoso-dentata, minus longe anguste decurrentia, folia summa parva, lineari-lanceolata, sparse tenuiter spinulosa, paulo decurrentia. *Capitula* subsessilia vel breviter (usque ad 1 cm) pedunculata, spinis inclusis 3.5–5 cm diametro, 65–90-flora; involucrum late ovatum vel globosum, basi umbilicatum, superne valde constrictum, absque spinis  $2 \times 1.8$ –2 cm; phylla 70–90, arachnoidea, cito glabrescentia, saepe glandulis sessilibus tecta, e basi appressa ovata, 5 mm longa, superne constricta, demum flava, in appendicem reflexam vel horizontaliter patulam, demum viridem, ovatam, cordatam vel deltoideam, basi 3–7 mm latam, sensim in spinam terminalem validam, 5–15 mm longam, margine remote spinosam abeuntia, phylla paenintima appendice abbreviata, intima erecta, usque ad 25 mm longa, membranacea. *Receptaculum setae* laeves. *Corolla* rosea vel purpurea, 20–25 mm longa, laciniae 4–6 mm longae. *Antherarum tubus* roseus, glaber. *Achaenia* dilute brunnea, oblongo-cuneata,  $5 \times 2$  mm, compressa, indistincte longitudinaliter striata, superne truncata, minutissime denticulata. *Pappus* scaber, 4–6 mm longus.

Turkey. B9 Van: Toprak kale, hill above Van, steppe, 1770 m, 30 vi 1949, *Huber-Morath* 8921 (holo. hb. Hub.-Mor.); steppe between Van and Şuşanis Da., 1750 m, 1 vii 1949, *Reese*; Gevaş to Edremit, steppe, 9 vii 1954, *Davis & O. Polunin*, D. 22609; 3 km N of Gevaş, steppe, 1720 m, 7 vii 1951, *Hub.-Mor. & Simon*, H.-M. 11181; pass between Gevaş and Van, steppe, 1900 m, 7 vii 1951, *Hub.-Mor. & Simon*, H.-M. 11184; Van to Havasor, steppe, 30 vii 1954, *Davis & O. Polunin*, D. 23286, 23288; Havasor to Hoşap, dry stony hills, 34 km from Havasor, 2150 m, 3 vii 1966, *Davis* 45967; 1 km S of Hoşap, 2000 m, 8 vii 1951, *Hub.-Mor.* 11182; idem, 3 km S of Hoşap, 2000 m, 8 vii 1951, *Hub.-Mor.* 11183; hills 10 km N of Başkale, 18 viii 1954, *Davis & O. Polunin*, D. 24526.

**Cousinia satdagensis** Hub.-Mor., *sp. nov.* (Sect. *Sphaerocephalae* Bunge).

*Perennis*. *Caulis* erectus, 35–45 cm altus, tenuis, sulcatus, basi 7 mm diametro, 3–8-cephalus, appresse albo-tomentosus, tota longitudine dense foliatus, a medio divaricate ramosus, ramis 1–7, brevibus, erecto-patentibus. *Folia* omnia utrinque subaequaliter albo-tomentosa, indumento supra laxiore, subtus denso, costa mediana crassa, subtus convexa, nervatura distincte prominente, nervis lateralibus congestis, a costa mediana angulo recto abeuntibus, in spinas flavescentes rigidas, vulnerantes, usque ad 5 mm longas, excurrentibus; folia basalia in petiolum 2–4 cm longum attenuata, lamina

oblonga vel lanceolata, 15–25 cm longa, 4–6 cm lata, dentato-lobata vel pinnatifida, lobis late triangularibus, irregulariter spinosis, utrinque  $\pm 10$ ; folia caulina inferiora similia sed minora, breviter anguste adnato-decurrentia, folia media et superiora gradatim descrenentia, ovata vel lanceolata, folia summa 2–4 cm longa, 1–2 cm lata, indivisa, spinifera, folia caulina omnia sessilia, basi semiamplexicaulia vel subcordata,  $\pm$  dilatata, cauli late adnato-decurrentia, alis cuneatis, (0.5–) 1–5 cm longis. *Capitula* ante anthesin spinis inclusis 2.5–3 cm diametro, c. 120-flora; involucrum absque spinis globosum, c.  $1.5 \times 1.5$  cm, densissime albo-lanatum; phylla c. 75, omnia in parte superiore ex indumento emersa, exteriora e basi appressa oblonga, 4–6 mm longa, in spinam reflexam, 4–6 mm longam, sensim attenuata, intermedia e basi appressa, 9 mm longa, 4 mm lata, in spinam 6 mm longam, inferne usque ad 2.5 mm latam, modice recurvam vel patulam attenuata, phylla intima erecta, usque ad 25 mm longa, 1–3 mm lata, membranacea, glabra vel superne subvelutina. *Receptaculum setae* scabrae. *Flores acheniaequae* ignoti.

Turkey. C9 Hakkâri: pass between Çölemerik and Kaval, shaley N slopes, 2500 m, 23 vi 1966, *Davis* 45422 (holo. E). C10 Hakkâri: Sat Da., NW of Sat gölü, rocky igneous slopes, 28 vi 1966, *Davis* 45488; 21 km from Bajirge to Yüksekova, meadow on shaley hillside, 2230 m, 18 vi 1966, *Davis* 45230.

***Cousinia davisiana* Hub.-Mor., sp. nov. (Sect. *Stenocephalae* Bunge).**

E planta unica descripta.

*Perennis*, ubique dense araneoso-lanatus. *Caulis* ad minimum 30 cm altus, robustus, teres, pleiocephalus, ramosissimus, ramis crassis, erecto-divaricatis, dense foliatus. *Folia* omnia utrinque subaequaliter araneoso-lanata, costa mediana crassa, subtus convexa, nervatura distincte prominente, nervis lateralibus a costa mediana  $\pm$  angulo recto abeuntibus, dentato-sublobata, irregulariter spinosa, in spinas saepe usque ad 2 cm longas vulnerantes excurrentibus; folia basalia ignota; folia caulina media 5–12 cm longa, usque ad 8 cm lata, dentibus triangularibus longe spinoso-acuminatis, utrinque 6–10, folia caulina superiora lanceolata, dentibus minoribus, tenuiter spinosis, folia caulina summa bracteiformia, anguste lanceolato-acuminata, sparse spinifera, capitulis approximata, folia caulina media et superiora late cuneato-decurrentia, alis dense spinosis, 1–4 cm longis. *Capitula* usque ad 25, ad extremos ramos congesta, spinis appressis inclusis 1–1.5 cm diametro, pauciflora; involucrum absque spinis elongato-ovatum, c.  $2 \times 1-1.5$  cm; phylla 70–80, dense arachnoideo-lanata, omnia erecta, e basi appressa c. 2 mm longa, 1.5 mm lata, margine minutissime serrulata, in spinam terminale tenuem, 5–15 mm longam sensim attenuata, phylla intima membranacea, usque ad 20 mm longa, filiformia vel linearia, usque ad 2 mm lata. *Receptaculum setae* laeves. *Corolla* flava, 14–15 mm longa, lacinae 2.5 mm longae. *Antherarum tubus* roseus, glaber. *Achaenia* brunnea,  $6 \times 2.5$  mm, oblongo-obovata, compressa, longitudinaliter striata, superne tenuiter marginata, obsolete denticulata. *Pappus* scaber, 4–5 mm longus. Turkey. C4 Konya: Ermenek, chalky slopes, 1400 m, 13 viii 1949, *Davis* 16144 (holo. E).

Only known from the type gathering. It is a pleasure to name this plant after its discoverer, Dr Peter H. Davis, whose exploration and research have added so much to the knowledge of the flora of Turkey.